



Montana Office of Public Instruction
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Mathematics Model Lesson

Geometry & Blackfeet Portraits

Created by Jennifer LaFromboise-Wagner (Blackfeet)

Grade K - Duration: 1 hour

Stage 1 Desired Results

Established Goals:

Geometric Reasoning Mathematics Content Standard 3: A student, applying reasoning and problem solving, will understand geometric properties, spatial relationships, and transformation of shapes, and will use spatial reasoning and geometric models to analyze mathematical situations within a variety of relevant cultural contexts, including those of Montana American Indians.

IEFA Essential Understanding 1: There is great diversity among the 12 tribal Nations of Montana in their languages, cultures, histories and governments. Each Nation has a distinct and unique cultural heritage that contributes to modern Montana.

Understandings:

- Gain an awareness that geometry helps to represent and make sense of the world.
- See portraits of Blackfeet Indians that were used in advertising for the Great Northern Railway.

Essential Questions:

- How many sides does a _____ have?
- How many angles does a _____ have?
- What shape does this look like to you? Why?
- How are a square and a rectangle the same or different?
- Can you use your finger to trace a _____ over this part?
- Is this similar (kind of the same) to a _____?
- What shape does the top, middle, or bottom of the _____ remind you of?

Students will be able to...

- use their knowledge of basic shapes to identify basic shapes in portraits of Blackfeet Indians.
- replicate an aspect of a Blackfeet Indian portrait by using their knowledge of basic shapes.

Students will know...

- strategies to help identify shapes.
- strategies to create shapes.
- how Blackfeet Indians looked and dressed in the 1920s.
- they can see basic shapes in portraits.
- by using basic shapes they can recreate a picture or object.
- two shapes put together can create a different shape.

Stage 2 Assessment Evidence

Performance Tasks:

- Classroom task of creating a replica of one aspect of the portrait. Created on paper.



Geometry and Blackfeet Portraits (continued)

Other Evidence:

- Participation in identifying shapes from portrait. Evident from shapes drawn on their portrait paper.
- Participation in classroom discussions regarding lesson.
- Teacher observations during the lesson.

Stage 3 Learning Plan

Learning Activities:

Introduction-5 minutes

“We have finished learning about shapes, how to identify them, and how to draw them. We are now going to use that knowledge we have to locate those shapes in portraits. We will also use those shapes to make a replica of the portrait, meaning we will copy the portrait the best we can!”

“The portraits we are going to be using are famous! They are old portraits painted in the early 1900s and they are of Blackfeet Indians. What makes these portraits famous is that they were used as advertisements for the Great Northern Railway, the railroad that travels through the Blackfeet Reservation. They were painted by a German artist named Winold Reiss (Vee-nold Rice). They are very vivid with detail and show the Blackfeet’s use of shapes in their clothing and lodges.”

“I am excited to get started, aren’t you? Ok, let me model for you what you will need to know in order for you to do a great job!”

Model Expectations-20-25 minutes

- 1) Introduce the portrait of Double Steel and Two Cutter. “These women of the Kainah (Blood) Blackfeet were well known for their beadwork.”
- 2) Display so all students can see the portrait.
- 3) Use the strategy called think aloud. Say “I am going to look and think for 1 minute before I do anything.”
- 4) After 1 minute, say “I am going to look for triangles first. I know a triangle has three sides or three points. Oh I see one; I will trace it with my marker.”
- 5) Continue on with square, rectangle, and circle; using the same strategy of think aloud.
- 6) Once the obvious shapes are traced, say “How can I find more shapes?” “I think her hair on the side looks like a triangle; let me trace it with my finger to see.” Or “Her forehead looks like a triangle if I make a line where her eyebrows are.” “I will trace it with my marker.”
- 7) Continue on with square, rectangle and circle; using the same strategy of thinking aloud and using background knowledge of shapes.

Geometry and Blackfeet Portraits (continued)

- 8) Say “I have found enough shapes to try to create a replica of this portrait. The part I want to replicate is the head of woman on the right, Two Cutter.”
- 9) Using a white paper hold it the same direction as the example. Think aloud again say “She is on the right in the example so I will find that on my paper. Her head is toward the top of the page, so I will find that on my paper. Now I see triangles on each side of her head and one in the middle for her forehead.”
(While saying this start to draw what you are saying. Use positional language while drawing.)
- 10) Although it does not look exactly like the portrait it is similar looking and we used shapes that we identified and it made it easier to replicate it

*Call attention to the strategies: think aloud and using the background knowledge of the shapes.

Locate Shapes-10-15 minutes

“Now you have seen me model what you need to do, so try using the strategies; especially when you feel stuck. Here is your portrait. It is titled “The Drummers.” Song is a very important part of Blackfeet culture therefore drummers who know songs for celebration, ceremony and other aspects of Blackfeet culture are looked upon with great respect. According to Reiss, this portrait features three important Blackfeet drummers: Buffalo Body; Heavybreast; and Sure Chief. Remember to think about how to help yourselves before calling on me. If you are still stuck I will give assistance but will not draw for you.”

- 1) Hand out portraits.
- 2) Walk around the tables as they are working. Write down any observations you might hear or see about their understanding of the lesson, or if they used any strategies. Help students only if they have tried to help themselves first.
- 3) Monitor their time verbally or with a timer so they will have enough time to create a replica.
- 4) Collect all sheets and use for assessment.

Create a replica-15-20 minutes

“It is time to use the knowledge you have about creating shapes and the position of where you located the shapes in the portrait to create a replica. Choose a part of the portrait and copy it. Remember to use the strategies of thinking aloud, visualizing where the shape is located and how it looks, and your background knowledge of creating shapes. Try to help yourselves before asking for my help. If you just can’t get it I will assist you, but not draw it for you.”

- 1) Hand out white paper.
- 2) Walk around tables as they are working. Write down any observations you might see or hear about their understanding of the lesson and/or if they used the strategies. Help students only if they have tried to help themselves first.

Geometry and Blackfeet Portraits (continued)

- 3) Monitor their time verbally or with a timer.
- 4) Collect all replicas, use for assessment, and display them in the room along with the original Winold Reiss portrait.

Since fine motor skills are still being developed, be careful with comments relating to their replicas. Focus on facts like position, size and direction of shapes. Also comment on if you noticed them using any of the strategies.

- Find time at the end of the lesson or later during the day to look at all the other portraits that were painted for the calendar.
- Find times in the year to try this lesson again to see if students improve on creations and on the use of the strategies.

Resources:

- www.winold-reiss.org
- www.gngoat.org/portraits.htm
- www.nctm.org
- <http://standards.nctm.org/document/chapter3/goem.htm>

Materials/Resources Needed:

- 2 -Winold Reiss Portraits of Blackfeet Indians (at the end of this lesson)
- Winold Reiss, *Double Steel and Two Cutter*
No date, pastel, charcoal, gouache on cardboard
Collection of Glenbow Museum, Calgary, Canada, 79.2.1
- Winold Reiss, *The Drummers*
1933, lithograph poster
Montana Historical Society, Haynes Foundation Collection, 1980.61.221
- White paper
- Pencils, markers, crayons and/or highlighters

Double Steel and Two Cutter



The Drummers

